

# COLLAPSIBLE GAZEBO FRAME WITH INDEPENDENT CANOPY SUPPORT

## FIELD

[0001] The present invention relates to collapsible structures generally and more particularly to collapsible gazebos.

## BACKGROUND

[0002] Collapsible gazebos may be used for many purposes such as providing shade or rain protection to allow for more enjoyable dining, resting or playing while in the outdoors. Additionally, because the gazebos are collapsible, the gazebos may be assembled and disassembled for use in different places, such as back yards or parks.

[0003] Conventional collapsible gazebos, however, can be difficult to assemble, detracting from the enjoyment of their use. For example, placing the canopy (tarp) over the top of an assembled gazebo frame can be difficult because the portion of the gazebo frame that supports the canopy (canopy support frame) is automatically deployed at the same time as the other parts of the gazebo frame are deployed. Thus, the canopy support frame is too high for many people to reach and the canopy cannot be properly placed on its frame.

[0004] Therefore, a gazebo frame allowing for easier deployment is needed.

## SUMMARY

[0005] A collapsible gazebo frame with independent canopy support includes a set of four corner support members that rest on a ground surface at a bottom end and provide support for other gazebo frame components. The gazebo frame also includes a set of four scissor assemblies, each being coupled to a different pair of the four corner support members. The scissor assemblies can extend and retract. Each of a set of four scissor assembly sliders is slidably coupled to a different one of the four corner support members and serves to extend and retract the scissor assemblies coupled to the respective corner support member when slid along the corner support member. As a further portion of the gazebo frame, a canopy support frame includes a set of four canopy support members, each being coupled to the top end of a different

one of the four corner support members and having a canopy frame joint that can be placed in a locked position. The canopy support frame also includes a set of four canopy frame sliders, where each canopy frame slider is slidably coupled to a different one of the four corner support members and is coupled to a different one of the four canopy support members by a canopy frame extender. The canopy frame sliders serve to lock the canopy frame joints when slid along their corner support members.

[0006] In one aspect of the invention, each of the four corner support members is extendable and retractable.

[0007] In another aspect of the invention, a canopy peak support member is coupled to the inner ends of each canopy support member to support the peak of a gazebo canopy.

[0008] In another aspect of the invention, each of a set of four feet is fixed to the bottom end of a different one of the four corner support members to anchor the gazebo frame to the ground surface.

[0009] In another aspect of the invention, each of the four corner support members slants inward towards the center of the gazebo frame when the gazebo frame is deployed.

[0010] In another aspect of the invention, the canopy frame joints are locked using canopy frame sleeves.

## DESCRIPTION OF THE DRAWINGS

[0011] Figure 1 is a perspective view showing the construction of a collapsible gazebo frame, according to one embodiment of the present invention;

[0012] Figure 2 is a perspective view showing the construction of a collapsible gazebo frame, according to another embodiment of the present invention; and

[0013] Figure 3 is a detailed view showing a canopy frame sleeve, according to one embodiment of the invention.

## DETAILED DESCRIPTION

[0014] Figure 1 is a perspective view showing the construction of a collapsible gazebo frame 100, according to one embodiment of the present invention. The gazebo frame includes corner support members 112, scissor assemblies 130, scissor assembly sliders 120, and a canopy

support frame 152. The canopy support frame includes canopy frame sliders 125, canopy support members 143, canopy frame joints 148, and canopy frame extenders 150. The canopy support members include outer canopy support members 145 and inner canopy support members 140. The gazebo frame may also include feet 155 to and a canopy peak support member 160. The corner support members may include upper corner support members 110 and lower corner support members 105.

[0015] The corner support members 112 rest on the surface of the ground. The scissor assemblies 130 are each coupled to a different pair of corner support members and can be extended and retracted. Each of the scissor assembly sliders 120 are slidably coupled a different corner support member. The scissor assembly sliders are used to extend and retract the scissor assemblies coupled to their respective corner support members. That is, by sliding a scissor assembly slider along its corner support member, a user can extend and retract the respective scissor assemblies.

[0016] In the canopy support frame 152, the canopy support members 143 are each coupled to a different corner support member. The canopy frame joints 148 which join the two portions of the canopy support members, the inner canopy support member 140 and the outer canopy support member 145, can be placed in a locked position to make the canopy support frame rigid. Each canopy frame slider 125 is slidably coupled to a different corner support member. Each canopy frame slider is also coupled to a different canopy support member by the canopy frame extenders 150. Upward movement of a given canopy frame slider causes the respective canopy frame extender to apply force to the respective canopy frame joint, thereby bringing the inner canopy support member and the outer canopy support member into linear alignment. The outer and inner canopy support members can be locked in linear alignment by locking the canopy frame slider in an upward position.

[0017] The embodiment depicted in Figure 1 shows the gazebo frame in a deployed or extended position. In deploying the gazebo frame from a collapsed position, the canopy support frame 152 is deployed independently of the scissor assemblies 130. In one embodiment, the scissor assemblies are deployed by sliding the scissor assembly sliders 120 in an upward direction along the respective corner support members 112. Sliding of the scissor assembly sliders in an upward direction causes the scissor assemblies to extend from the corner

support members. In one aspect, the scissor assembly sliders may be locked in an upward position using, for example, a push button latch in the corner support member. Locking the scissor assembly sliders in an upward position locks the scissor assemblies in an extended position, as shown in the embodiment depicted in Figure 1. A further explanation of how the scissor assemblies are deployed can be found in U.S. Patent 5,944,040.

[0018] The canopy support frame 152 is deployed independently of the scissor assemblies 130 using the canopy frame sliders 125. That is, the canopy frame sliders operate independent of the scissor assembly sliders. In one embodiment, upward movement of the canopy frame sliders causes the canopy frame extenders to exert force on the outer canopy support members. The force exerted on the outer canopy support members causes the canopy frame joints to come into a 'straight' position. In the straight position, the outer canopy support members are in linear alignment with respect to the inner canopy support members. In one aspect, the canopy frame joints can be locked in the straight position. The locking of the canopy frame joints may be achieved by locking the canopy frame sliders in an upward position using, for example, a lock mechanism such as a push button latch in the corner support member. By locking the canopy frame joints in a straight position, the canopy support members provide a rigid support structure upon which a canopy or tarp may be placed. Furthermore, since the canopy support frame is deployed independently of the scissor assemblies, the canopy may be placed over the canopy support frame after the scissor assemblies are extended to form the sides of the deployed gazebo frame but before the canopy support frame is deployed, elevating the peak of the gazebo frame and making it more difficult to place the canopy. Thus, the independent deployment of the canopy support frame provides for easier assembly and disassembly of the entire gazebo.

[0019] As stated above with respect to Figure 1, the corner support members may include upper corner support members and lower corner support members. In one aspect, the upper and lower corner support members are telescoping with respect to each other, making the corner support members expandable and collapsible. Furthermore, in one aspect the corner support members are slanted inward toward the center of the gazebo frame when deployed to provide additional stability. Additionally, the feet 155 may be fixed to the bottom of the corner support members to rest on the surface of the ground and provide anchoring to the ground

surface.

[0020] In another aspect, the canopy peak support member 160 provides additional height and support to the peak of the canopy.

[0021] Figure 2 is a perspective view showing the construction of a collapsible gazebo frame 200, according to another embodiment of the present invention. The collapsible gazebo frame includes corner support members 112, scissor assemblies 130, scissor assembly sliders 120, and a canopy support frame 152. The canopy support frame includes canopy support members 143, canopy frame joints 148, canopy frame sleeves 265 and canopy frame extenders 250. The embodiment depicted in Figure 2 provides an alternate mechanism for locking the canopy support frame in a deployed or extended position. The canopy frame sleeves 265 slidably couple to the canopy support members. The canopy frame sleeves can be slid around the canopy frame joints to lock the canopy support members in a straight position. In one aspect, the canopy frame sliders described with reference to Figure 1 are used in conjunction with the canopy frame sleeves described with reference to Figure 2.

[0022] Figure 3 is a detailed view showing a canopy frame sleeve 265, according to one embodiment of the invention. The canopy frame sleeves may be of a hollow 'pipe-like' construction or of any other construction suitable to slidably couple to the canopy support members. In the embodiment of Figure 3, the canopy frame sleeve is depicted in a 'locked' position. That is, the canopy frame sleeve is slid around the canopy frame joint so that the inner canopy support member and the outer canopy support member are locked in a straight position. Furthermore, in the embodiment depicted in Figure 3, a sleeve stop 310 prevents the canopy frame sleeve from sliding past the canopy frame joint. The sleeve stop may be a screw, a bolt, welded metal or any other suitable construction.

[0023] The present invention provides for easier assembly and disassembly of a gazebo frame by simplifying the assembly and disassembly of the canopy and canopy support frame.

[0024] Having disclosed exemplary embodiments and the best mode, modifications and variations may be made to the disclosed embodiments while remaining within the subject and spirit of the invention as defined by the following claims.